



Effective Date: 01/01/13  
Replaces Revision: 07/26/10

NON-EMERGENCY TELEPHONE  
610-866-4225

24-HOUR CHEMTREC EMERGENCY TELEPHONE  
800-424-9300

## SDS – SAFETY DATA SHEET

### 1. Identification

**Product Identifier:** SODIUM HYDROXIDE 10 - 60%

**Synonyms:** Caustic Soda Solution, Lye Solution, Sodium Hydroxide Liquid; Sodium Hydrate Solution, Sodium Hydroxide

**Chemical Formula:** NaOH in H<sub>2</sub>O

**Recommended Use of the Chemical and Restrictions On Use:** Laboratory Reagent

**Manufacturer / Supplier:** Puritan Products; 2290 Avenue A, Bethlehem, PA 18017 **Phone:** 610-866-4225

**Emergency Phone Number:** 24-Hour Chemtrec Emergency Telephone 800-424-9300

### 2. Hazard(s) Identification

**Classification of the Substance or Mixture:**

Skin corrosion (Category 1A)

Serious eye damage (Category 1)

Acute aquatic toxicity (Category 3)

**Risk Phrases:**

Symbol: C

R35: Causes severe burns.

**Label Elements:**

**Trade Name:** SODIUM HYDROXIDE 10 - 60%

**Signal Word:** Danger



**Hazard Statements:**

H314: Causes severe skin burns and eye damage.

H402: Harmful to aquatic life.

**Precautionary Statements:**

P280: Wear protective gloves / protective clothing / eye protection/ face protection.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310: Immediately call a POISON CENTER or doctor / physician.

### 3. Composition / Information on Ingredients

**CAS Number:** 1310-73-2

**EC Number:** 215-185-5

**Index Number:** 011-002-00-6

**Molecular Weight:** 40 g/mol

Ingredient	CAS Number	EC Number	Percent	Hazardous	Chemical Characterization
Sodium Hydroxide	1310-73-2	215-185-5	10 - 60%	Yes	Substance
Water	7732-18-5	231-791-2	40 - 90%	No	Mixture

### 4. First-aid Measures

In all cases, immediately call a POISON CENTER or doctor/ physician.

**Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give Oxygen. Call a physician immediately.

**Ingestion:** DO NOT INDUCE VOMITING! Give large quantities of water or milk, if available. Never give anything by mouth to an unconscious person. Call a physician immediately.

**Skin Contact:** In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician immediately.

**Eye Contact:** Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call a physician immediately.

**Note to Physician:**

Perform endoscopy in all cases of suspected sodium hydroxide ingestion. In cases of severe esophageal corrosion, the use of therapeutic doses of steroids should be considered. General supportive measures with continual monitoring of gas exchange, acid-base balance, electrolytes, and fluid intake are also required.

### 5. Fire-fighting Measures

**Fire:** Not considered to be a fire hazard. Hot or molten material can react violently with water. Can react with certain metals, such as aluminum, to generate flammable Hydrogen gas.

**Explosion:** May cause fire and explosions when in contact with incompatible materials.

**Fire Extinguishing Media:** Use any means suitable for extinguishing surrounding fire. CAUTION: Adding water to caustic solution generates large amounts of heat.

**Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

### 6. Accidental Release Measures

**Personal Precautions, Protective Equipment and Emergency Procedures:** Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

**Environmental Precautions and Methods and Materials for Containment and Cleaning Up:** Contain and recover liquid when possible. Do not let product enter drains. Residues from spills can be diluted with water, neutralized with dilute acid such as acetic, hydrochloric or sulfuric. Absorb neutralized caustic residue on clay, vermiculite or other inert substance and package in a suitable container for disposal. Do not flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

## 7. Handling and Storage

**Precautions for Safe Handling and Conditions for Safe Storage, Including Any Incompatibilities:** Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities. Store above 16C (60F) to prevent freezing. Always add the caustic to water while stirring; never the reverse. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid.) Observe all warnings and precautions listed for the product. Do not store with aluminum or magnesium. Do not mix with acids or organic materials.

## 8. Exposure Controls / Personal Protection

### **Airborne Exposure Limits:**

OSHA Permissible Exposure Limit (PEL) - 2 mg/m<sup>3</sup> Ceiling

ACGIH Threshold Limit Value (TLV) - 2 mg/m<sup>3</sup> Ceiling

**Ventilation System:** A system of local and / or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

**Personal Respirators (NIOSH Approved):** If the exposure limit is exceeded and engineering controls are not feasible, a half face piece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full face piece particulate respirator (NIOSH type N100 filter) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, Glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full face piece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in Oxygen-deficient atmospheres.

**Skin Protection:** Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

**Eye Protection:** Use chemical safety goggles and / or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

## 9. Physical and Chemical Properties

Physical data is displayed for 10%, 30% and 50% aqueous sodium hydroxide solutions (Merck Index.)

**Appearance:** Clear, colorless solution

**Odor:** Odorless

**Odor Threshold:** Not determined

**pH:** 14.0 (10%, 30% and 50% solutions)

**% Volatiles by volume @ 21C (70F):** No information found

**Melting Point:**

For 10% solution = -10C (14 F); for 30% solution = 1C (34F); for 50% solution = 12C (53.6F)

**Boiling Point / Boiling Range:**

For 10% solution = 105C (221F); for 30% solution = 115C (239F); for 50% solution = 140C (284F)

**Flash Point:** Not applicable

**Evaporation Rate (BuAC=1):** Not determined

**Flammability:** Not applicable

**Upper / Lower Flammability or Explosive Limits:** Not applicable

**Vapor Pressure (mm Hg):** 13 @ 60C (140F) (50% solution)

**Vapor Density (Air=1):** 1.38 (50% solution)

**Relative Density:** 10% solution - 1.11, 30% solution - 1.33, 50% solution - 1.53

**Solubility:** Completely miscible with water

**Partition Coefficient: n-octanol / water:** No data available

**Auto-ignition Temperature:** No data available

**Decomposition Temperature:** No data available

**Viscosity:** No data available

## 10. Stability and Reactivity

**Reactivity and / or Chemical Stability:** Stable under ordinary conditions of use and storage.

**Possibility of Hazardous Reactions and Conditions to Avoid:** Heat, moisture, incompatibles.

**Incompatible Materials:** Sodium Hydroxide in contact with acids and organic halogen compounds, especially Trichloroethylene, may cause violent reactions. Contact with Nitromethane and other similar nitro compounds causes formation of shock-sensitive salts. Contact with metals such as Aluminum, Magnesium, Tin, and Zinc cause formation of flammable Hydrogen gas. Sodium Hydroxide, even in fairly dilute solution, reacts readily with various sugars to produce Carbon Monoxide. Precautions should be taken including monitoring the tank atmosphere for Carbon Monoxide to ensure safety of personnel before vessel entry.

**Hazardous Decomposition Products:** Sodium Oxide. Decomposition by reaction with certain metals releases flammable and explosive Hydrogen gas.

## 11. Toxicological Information

**Emergency Overview:** POISON! DANGER! CORROSIVE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. CAUSES BURNS TO ANY AREA OF CONTACT. REACTS WITH WATER, ACIDS AND OTHER MATERIALS.

### Potential Health Effects:

**Inhalation:** Severe irritant. Effects from inhalation of mist vary from mild irritation to serious damage of the upper respiratory tract, depending on severity of exposure. Symptoms may include sneezing, sore throat or runny nose. Severe pneumonitis may occur.

**Ingestion:** Corrosive! Swallowing may cause severe burns of mouth, throat, and stomach. Severe scarring of tissue and death may result. Symptoms may include bleeding, vomiting, diarrhea, fall in blood pressure. Damage may appear days after exposure.

**Skin Contact:** Corrosive! Contact with skin can cause irritation or severe burns and scarring with greater exposures.

**Eye Contact:** Corrosive! Causes irritation of eyes, and with greater exposures it can cause burns that may result in permanent impairment of vision, even blindness.

**Chronic Exposure:** Prolonged contact with dilute solutions or dust has a destructive effect upon tissue.

**Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders or eye disease may be more susceptible to the effects of this substance.

**Specific Target Organ Toxicity - Single Exposure (Globally Harmonized System:)** No data available.

**Specific Target Organ Toxicity - Repeated Exposure (Globally Harmonized System:)** No data available.

**Numerical Measures of Toxicity:** Cancer Lists: NTP Carcinogen

Ingredient	Known	Anticipated	IARC Category
Sodium Hydroxide (1310-73-2)	No	No	None
Water (7732-18-5)	No	No	None

### Acute Toxicity:

Sodium Hydroxide: irritation data: skin, rabbit: 500 mg/24H severe; eye rabbit: 50 ug/24H severe  
Investigated as a mutagen.

## 12. Ecological Information

**Ecotoxicity:** Harmful to aquatic life. The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

EC50 Water flea (*Ceriodaphnia dubia*): 34.59 mg/l 48 hours

LC50 Western mosquitofish (*Gambusia affinis*): 125 mg/l 96 hours

**Persistence and Degradability:** Expected to readily biodegrade.

**Bioaccumulative Potential:** No further relevant information available.

**Mobility in Soil:** During movement through soil some ion exchange will occur. Also, some of the Hydroxide may remain in the aqueous phase and will move downward through soil in the direction of groundwater flow.

**Other adverse effects:**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

## 13. Disposal Considerations

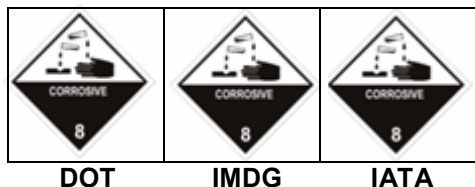
Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

## 14. Transport Information

**UN Number:** UN1824

**UN Proper Shipping Name:** SODIUM HYDROXIDE SOLUTION

**Packing Group:** II



**Land Transport ADR/RID and GGVS/GGVE (Cross Border / Domestic)**

**Transport Hazard Class(es):** 8

**Maritime Transport IMDG/GGVSea**

**Transport Hazard Class(es):** 8

**Marine Pollutant:** No

**Air Transport ICAO-TI and IATA-DGR**

**Transport Hazard Class(es):** 8

**Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code**

**Special Precautions for User:** Warning: Corrosive Substances

## 15. Regulatory Information

### Chemical Inventory Status – Part 1

Ingredient	TSCA	EC	Japan	Australia
Sodium Hydroxide (1310-73-2)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes

### Chemical Inventory Status – Part 2

Ingredient	Korea	Canada		Phil.
		DSL	NDSL	
Sodium Hydroxide (1310-73-2)	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	No	Yes

### Federal, State & International Regulations - Part 1

Ingredient	SARA 302		SARA 313	
	RQ	TPQ	List Chemical	Catg.
Sodium Hydroxide (1310-73-2)	No	No	No	No
Water (7732-18-5)	No	No	No	No

### Federal, State & International Regulations - Part 2

Ingredient	RCRA		TSCA
	CERCLA	261.33	8(d)
Sodium Hydroxide (1310-73-2)	1000	No	No
Water (7732-18-5)	No	No	No

<b>Chemical Weapons Convention:</b> No		<b>TSCA 12(b):</b> No		<b>CDTA:</b> Yes
<b>SARA 311/312:</b>	<b>Acute:</b> Yes	<b>Chronic:</b> No	<b>Fire:</b> No	<b>Pressure:</b> No
<b>Reactivity:</b> Yes		Mixture / Liquid		

**Australian Hazchem Code:** 2R

**Poison Schedule:** S6

## 16. Other Information

THE INFORMATION CONTAINED IN THIS DATA SHEET IS BASED ON THE DATA AVAILABLE TO PURITAN PRODUCTS AT THIS TIME. WHILE BELIEVED TO BE ACCURATE, PURITAN PRODUCTS DOES NOT CLAIM IT TO BE ALL INCLUSIVE. IT IS PROVIDED INDEPENDENT OF ANY SALE OF THE PRODUCT, FOR THE PURPOSE OF HAZARD COMMUNICATION, AND AS A GUIDE FOR THE APPROPRIATE PRECAUTIONARY HANDLING OF THE PRODUCT BY PROPERLY TRAINED INDIVIDUALS. IT IS NOT INTENDED TO PROVIDE PRODUCT PERFORMANCE OR APPLICABILITY INFORMATION, AND NO EXPRESS OR IMPLIED WARRANTY OF ANY KIND IS MADE WITH RESPECT TO THE PRODUCT, THE UNDERLYING PRODUCT DATA, OR THE INFORMATION CONTAINED HEREIN.

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